

# **Presentation Agenda**

- CULTURAL RESOURCES (FERC Resource Report 4)
- SOCIOECONOMICS (FERC Resource Report 5)
- AIR AND NOISE (FERC Resource Report 9)
- ALTERNATIVES (FERC RESOURCE REPORT 10)
- RELIABILITY AND SAFETY (FERC Resource Report 11)
- QUESTIONS / COMMENTS





- Section 106 of the National Historic Preservation Act
  - Requires federal agencies to take into account the effect of an undertaking on cultural resources listed or eligible for listing on the National Register of Historic Places (NRHP).
- Goal of Cultural Resource Investigations:
  - Locate, document, and evaluate archeological sites and structures that are listed or potentially eligible for listing on the NRHP.
  - Assess potential effects of the Project on those resources.
  - Provide recommendations to comply with Section 106.





- Defined as Geographic Area Where Undertaking May Directly or Indirectly Cause Changes in Character of or Use of Historic Properties
- Project APE for Archaeological Resources:
  - All areas where ground disturbances are proposed.
  - 400-foot-wide survey corridor for the pipelines.
  - 50-foot-wide survey corridor for access roads.
  - Entire site for compressor stations, meter stations, and contractor yards.
- Project APE for Architectural/Industrial Properties:
  - Areas where land use may change and where Project facilities may be visible from historic buildings or structures at least 50 years of age.
  - Includes viewshed to and from Project aboveground facilities up to 0.5 mile.
  - Viewshed for aboveground facilities terminated where vegetation or topography obstructs line-of-sight.





- Overview Literature Search:
  - Gather Information on Previously Recorded Archaeological and Historic Sites within 1 mile of Project Facilities.
  - Conducted Through Review of State Historic Preservation Office (SHPO) Files, Libraries, and Other Repositories.
- SHPO Consultations Initiated in June 2014.
- Cultural Surveys Began in June 2014 and are Ongoing:
  - Archaeological Surveys:
    - · Pedestrian walkover of all portions of APE .
    - Shovel testing and documentation conducted in accordance with applicable federal and SHPO guidelines and requirements.
  - Historic Architectural/Industrial Property Surveys:
    - Identification of all aboveground properties that appear to be 50 years or older.
    - · Field documentation of each property to assess NRHP eligibility.





- · West Virginia:
  - Archaeological Survey 11 Archaeological Resources Identified To Date
    - · Five (5) sites are unassessed at this time
    - · Two (2) sites are recommended as potentially eligible for listing on the NRHP
    - · Four (4) sites are recommended as not eligible for listing on the NRHP
  - Architectural Survey 2 Previously Recorded Historic Properties Identified To Date
    - · One (1) property is recommended as potentially eligible for listing on the NRHP
    - · One (1) property is recommended as not eligible for listing on the NRHP
- · Pennsylvania:
  - Archaeological Survey No Archaeological Resources Identified To Date
  - Architectural Survey 4 Historic Properties Identified To Date
    - · One (1) property has been previously determined eligible for listing on the NRHP by the SHPO
    - · Three (3) properties are recommended as not eligible for listing on the NRHP





- · Ohio:
  - Archaeological Survey 134 Archaeological Resources Identified To Date
    - Three (3) historic cemeteries will be avoided and a minimum 100-foot buffer maintained between the cemetery and construction work areas
    - Three (3) sites are recommended as potentially eligible for listing on the NRHP
    - · 128 sites are recommended as not eligible for listing on the NRHP
  - Architectural Survey

     83 Historic Properties Identified To Date
    - · 39 properties are recommended as potentially eligible for listing on the NRHP
      - · No adverse impact anticipated for 25 properties
      - · Additional evaluation to be completed for the remaining 14
    - · 44 properties are recommended as not eligible for listing on the NRHP





- · Michigan:
  - Archaeological Survey 114 Archaeological Resources Identified To Date
    - · One (1) site is unassessed at this time
    - Thirteen (13) sites are recommended as potentially eligible for listing on the NRHP
    - · 100 sites are recommended as not eligible for listing on the NRHP
  - Architectural Survey 119 Historic Properties Identified To Date
    - · 16 properties are recommended as potentially eligible for listing on the NRHP
      - · No adverse impact anticipated for 11 properties
      - Additional evaluation to be completed for the remaining five (5)
    - 103 properties are recommended as not eligible for listing on the NRHP

#### Mitigation Measures

- · Avoid NRHP eligible sites.
- If avoidance is not possible, complete data recovery and documentation before construction.





- 14 Federally recognized and four (4) other Native American groups may have an interest in the Project area
- Consultation Initiated in October 2014
- Three (3) Native American Groups Have Responded To Date
  - · Peoria Tribe of Indians of Oklahoma
  - · Delaware Nation
  - · Seneca Nation of New York
  - · No objections to Project

#### **Native American Tribes**

Absentee-Shawnee Tribe of Oklahoma

Citizen Potawatomi Nation

**Delaware Nation** 

Eastern Shawnee Tribe of Oklahoma

Forest County Potawatomi Community

Hannahville Indian Community

Miami Tribe of Oklahoma

Ottawa Tribe of Oklahoma

Peoria Tribe of Oklahoma

Pokagon Band of Potawatomi Indians

Prairie Band Potawatomi Nation

Saginaw Chippewa Indian Tribe

Seneca Nation

Seneca-Cayuga Tribe of Indians

Shawnee Tribe

Wyandotte Nation

Miami Tribe of Oklahoma

Tonawanda Band of Seneca Nation





- Rover Will Implement its *Procedures Guiding the Discovery of Unanticipated Cultural Resources and Human Remains: Post-Review Discoveries* (Unanticipated Discoveries Plan)
- Unanticipated Discoveries Plan Includes:
  - Cultural Resources Training for Construction Personnel
  - Procedures to Follow in the Event of an Unanticipated Discovery
  - Notification Procedures and Contacts
    - · Federal agencies
    - SHPOs
    - · Federally Recognized Native American Groups
    - · Medical Examiner/Coroners
    - · Law Enforcement



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# Existing Population and Demographic Conditions

State, County	2013 Population Estimate	2010 Population Density (persons per square mile)	Population Change Since 2010 (percent)	2013 White Individuals (percent)	Total Minorities (percent*)
		WEST VIRGINIA	4		
Doddridge County, WV	8,344	27.5	1.7	96.7	3.5
Hancock County, WV	30,291	371.3	-1.3	95.5	5
Marshall County, WV	32,459	108.4	-2	97.7	2.6
Tyler County, WV	8,995	35.9	-2.3	98.6	1.6
Wetzel County, WV	16,204	46.3	-2.3	98.3	1.7
		PENNSYLVANIA	Ą		
Washington County, PA	208,206	242.5	0.2	94.2	6.5
		OHIO			
Ashland County, OH	53,043	125.6	-0.2	97.2	3.4
Belmont County, OH	69,571	132.3	-1.2	94	6.5
Carroll County, OH	28,275	73.1	-1.9	97.7	2.7
Crawford County, OH	42,808	109	-2.2	97.2	3.7
Defiance County, OH	38,532	94.9	-1.3	95.6	12.3
Fulton County, OH	42,488	105.3	-0.5	97.5	9.6
Hancock County, OH	75,773	140.7	1.3	94.6	9.2
Harrison County, OH	15,622	39.4	-1.5	95.8	4.5
Henry County, OH	28,092	67.8	-0.4	97.5	8.4
Jefferson County, OH	67,964	170.7	-2.5	92	9
Monroe County, OH	14,585	32.1	-0.4	98	2.2
Noble County, OH	14,628	36.8	-0.1	95.9	9.2
Richland County, OH	121,773	251.3	-2.2	87.9	13.4
Seneca County, OH	55.914	103.0	-1.5	94.8	8.8
Stark County, OH	375,432	652.9	Z	88.8	12.3
Tuscarawas County, OH	92.672	163.1	0.1	97	4.2
Wayne County, OH	115,071	206.4	0.5	95.9	5.2
Wood County, OH	129,264	203.3	3	93.6	10.1



#### Existing Population and Demographic Conditions (cont'd)

State, County	2013 Population Estimate	2010 Population Density (persons per square mile)	Population Change Since 2010 (percent)	2013 White Individuals (percent)	Total Minorities (percent*)
		MICHIGAN			
Genesee County, MI	415,376	668.5	-2.4	75.2	27.2
Lapeer County, MI	88,389	137.4	0.1	96.5	7.1
Lenawee County, MI	99,188	133.3	-0.7	94.2	12.5
Livingston County, MI	184,443	320.2	1.9	96.8	4.8
Macomb County, MI	854,769	1,754.90	1.6	83.6	16.3
Oakland County, MI	1,231,640	1,385.70	2.4	76.9	25
St. Clair County, MI	160,469	226.1	-1.6	94.4	7.8
Shiawassee County, MI	68,900	133.1	-2.5	97	4.9
Washtenaw County, MI	354,240	488.4	2.7	75	27.9

Sources:

- Summary of Existing Population Statistics in Counties Crossed by Project:
  - Average population density is 259 persons per square mile
    - Low is 27 persons per square mile (Doddridge County, West Virginia)
    - High is 1,775 persons per square mile (Macomb County, Michigan)



U.S. Census Bureau, Census QuickFacts, http://quickfacts.census.gov

Z: Value greater than zero but would be rounded to zero

<sup>\*</sup>percent total minorities calculated by taking total population and subtracting out White Only, not Hispanic/Latino, and dividing by total population.

# Existing Income and Employment Conditions

State, County	2008-2012 Per Capita Income (dollars)	2008-2012 Population Below Poverty Level (percent)	2008-2012 Civilian Labor Force	July 2014 Unemployment Rate <sup>1</sup> (percent)
		WEST VIRGINIA		
Doddridge County, WV	15,491	21.3	3,154	5.4
Hancock County, WV	24,509	17.4	14,641	7.5
Marshall County, WV	24,297	16.4	14,962	6.8
Tyler County, WV	19,389	18.2	3,680	8.0
Wetzel County, WV	21,274	17.5	6,286	10.6
		PENNSYLVANIA		
Washington County, PA	27,778	10.7	106,248	5.8
		OHIO		
Ashland County, OH	21,740	16.3	26,663	5.4
Belmont County, OH	21,861	14.6	32,782	6.0
Carroll County, OH	21,211	15	13,526	5.8
Crawford County, OH	21,107	14.7	20,395	6.8
Defiance County, OH	22,923	14.6	19,758	5.8
Fulton County, OH	23,994	10.3	22,665	6.1
Hancock County, OH	25,785	13.6	40,162	4.8
Harrison County, OH	19,972	19.4	7,063	5.5
Henry County, OH	23,434	12.5	14,521	5.3
Jefferson County, OH	22,151	16.8	31,616	8.0
Monroe County, OH	21,466	16.3	6,261	12.2
Noble County, OH	18,785	14.1	4,444	7.3
Richland County, OH	22,135	14.8	58,560	6.6
Seneca County, OH	21,419	14.9	28,619	5.6
Stark County, OH	24,278	14.5	190,940	5.7
Tuscarawas County, OH	21,724	13.6	46,119	5.0
Wayne County, OH	22,717	11.8	58,401	4.8
Wood County, OH	26,639	13.8	69,392	5.6



#### Existing Income and Employment Conditions (cont'd)

State, County	2008-2012 Per Capita Income (dollars)	2008-2012 Population Below Poverty Level (percent)	2008-2012 Civilian Labor Force	July 2014 Unemployment Rate <sup>1</sup> (percent)
		MICHIGAN		. ,
Genesee County, MI	22,526	19.9	192,375	9.3
Lapeer County, MI	23,995	11.5	42,319	10.1
Lenawee County, MI	22,256	14.1	48,787	8.7
Livingston County, MI	32,096	6.3	96,539	7.7
Macomb County, MI	26,618	11.8	437,112	9.6
Oakland County, MI	36,372	9.9	645,923	8.4
St. Clair County, MI	24,068	14.3	80,018	10.2
Shiawassee County, MI	22,957	14.4	33,946	9.2
Washtenaw County, MI	32,853	14.6	186,146	6.3

Sources:

United States (U.S.) Census Bureau, Census QuickFacts, http://quickfacts.census.gov (income and sales).

U.S. Department of Labor, Bureau of Labor Statistics. 2014. http://www.bls.gov/data (unemployment rate)

Notes:

- Summary of Existing Income and Employment Conditions:
  - Per capita income ranges from a low of \$15,491 (Doddridge County, WV) to a high of \$36,372 (Oakland County, Michigan).
  - Unemployment rates range from lowest in Hancock and Wayne Counties, OH (4.8 percent) to highest in Monroe County, OH (12.2 percent).



U.S. Census Bureau, Census 2012. http://factfinder2.census.gov (civilian labor force).

<sup>&</sup>lt;sup>1</sup> Not Seasonally Adjusted.

# Existing Temporary Housing Conditions

State, County	2010 Number of Vacant Housing Units for Seasonal, Recreational, or Occasional Use	2014 Number of Hotels/Motels	2014 Number of Campgrounds and RV Parks
	WEST VIRGINIA		
Doddridge County, WV	426	0	_1
Hancock County, WV	78	10	4
Marshall County, WV	507	6	9
Tyler County, WV	663	1	0
Wetzel County, WV	442	8	4
	PENNSYLVANIA		
Washington County, PA	544	69	39
	OHIO		
Ashland County, OH	413	27	50
Belmont County, OH	694	23	13
Carroll County, OH	1,405	4	27
Crawford County, OH	90	13	11
Defiance County, OH	108	10	6
Fulton County, OH	112	12	19
Hancock County, OH	161	22	14
Harrison County, OH	779	5	18
Henry County, OH	66	7	12
Jefferson County, OH	253	10	13
Monroe County, OH	686	4	7
Noble County, OH	763	3	10
Richland County, OH	405	42	40
Seneca County, OH	121	12	20
Stark County, OH	726	69	50
Tuscarawas County, OH	449	44	35
Wayne County, OH	244	24	53
Wood County, OH	329	45	21





State, County	2010 Number of Vacant Housing Units for Seasonal, Recreational, or Occasional Use	2014 Number of Hotels/Motels	2014 Number of Campgrounds and RV Parks
	MICHIGAN		
Genesee County, MI	1,088	66	34
Lapeer County, MI	894	16	28
Lenawee County, MI	2,414	28	49
Livingston County, MI	1,799	32	35
Macomb County, MI	1,226	116	7
Oakland County, MI	4,112	228	32
St. Clair County, MI	2,509	0	17
Shiawassee County, MI	628	8	17
Washtenaw County, MI	1,403	93	45
Course			

U.S. Census Bureau, Census 2012, http://factfinder2.census.gov (vacant housing units and vacancy rate).

- Summary of Existing Temporary Housing Conditions within Counties Crossed by the Project:
  - Average number of vacant housing units is 6,380 units, with a low of 66 units (Henry County, Ohio), and a high of 4,112 units (Oakland County, Michigan).
  - 1,057 hotels/motels.
  - 740 campgrounds and RV parks.



#### Public Services

County, State	County, State Number of Public I		Number of Fire Departments (by type)	Number of Hospitals	Number of Hospital Beds
		Departments WES	T VIRGINIA		noopie sou
Doddridge County, WV	4	2	2 (volunteer) / 1 (career)	0	0
Hancock County, WV	11	5	6 (volunteer) / 1 (career)	0	0
Marshall County, WV	11	6	12 (volunteer) / 2 (career)	1	127
Tyler County, WV	5	-4	4 (volunteer)	1	25
Netzel County, WV	8	4	9 (volunteer) / 1 (career)	1	68
		PENI	ISYLVANIA		
Washington County, PA	60	20	34 (volunteer) / 9 (career)	3	574
			OHIO		
Ashland County, OH	25	5	5 (volunteer) / 5 (career)	1	123
Belmont County, OH	23	11	13 (volunteer) / 16 (career)	3	271
Carroll County, OH	9	3	8 (volunteer) / 3 (career)	0	0
Crawford County, OH	21	5	3 (volunteer) / 8 (career)	2	75
Defiance County, OH	14	3	3 (volunteer) / 7 (career)	3	104
Fulton County, OH	22	6	1 (volunteer) / 6 (career)	1	117
Hancock County, OH	35	3	6 (volunteer) / 5 (career)	2	198
Harrison County, OH	6	3	10 (volunteer)	1	25
Henry County, OH	14	3	3 (volunteer) / 5 (career)	1	31
Jefferson County, OH	24	17	20 (volunteer) / 4 (career)	2	500
Monroe County, OH	8	2	5 (volunteer) / 1 (career)	0	0
Noble County, OH	4	2	4 (volunteer)	0	0
Richland County, OH	46	8	1 (volunteer) / 17 (career)	2	398
Seneca County, OH	31	9	4 (volunteer) / 7 (career)	1	120
Stark County, OH	116	20	9 (volunteer) / 24 (career)	5	1,766
Fuscarawas County, OH	40	14	9 (volunteer) / 10 (career)	2	182
Wayne County, OH	45	14	5 (volunteer) / 13 (career)	2	184
Wood County, OH	41	12	4 (volunteer) / 21 (career)	1	196



#### Public Services (cont'd)

County, State	ounty, State Number of Public Schools		Number of Fire Departments (by type)	Number of Hospitals	Number of Hospital Beds	
		MI	CHIGAN			
Genesee County, MI	152	13	26 (career)	3	1,130	
Lapeer County, MI	29	5	18 (career)	1	203	
Lenawee County, MI	46	8	2 (volunteer) / 15 (career)	2	133	
Livingston County, MI	43	7	12 (career)	2	199	
Macomb County, MI	236	17	33 (career)	4	1,006	
Oakland County, MI	334	35	63 (career)	10	3,536	
St. Clair County, MI	60	9	1 (volunteer) / 19 (career)	3	350	
Shiawassee County, MI	31	12	11 (career)	1	115	
Washtenaw County, MI	94	8	25 (career)	4	1,472	

Public School Review. 2014. http://www.publicschoolreview.com/

USACops. 2014. http://www.usacops.com/

Fire Department Directory, 2014, http://firedepartment.net/directory

Hospitals Center. 2014. http://www.hospitalscenter.com/county-hospitals.html (Hospitals by county)

U Compare Healthcare. 2014. http://www.ucomparehealthcare.com/hospital/ (Number of beds)

Health Reports. 2013. http://www.portal.state.pa.us/portal/server.pt?open=514&objlD=596752&mode=2

Health Care Provider Report & Information Extract. 2011. http://publicapps.odh.ohio.gov/eid/reports/EID\_Report\_Criteria.aspx

- Summary of Existing Public Services in the Counties Crossed by the Project:
  - 1,658 schools in 341 school districts, with an average school enrollment of 23,597 students.
  - 295 police departments.
  - 571 fire departments.
  - 65 hospitals with a total of 13,228 beds.





Parameter	Total
CONSTRUCTION	l .
Average Construction Workforce	11,075
Peak Construction Workforce	15,850
Peak Construction Workforce Hired Locally	7,925
Peak Construction Workforce (non-local)	7,925
Estimated Construction Payroll	\$88,000,000
Duration of Construction	18 months
OPERATIONS	
Additional Operation Workforce	30 to 50

- Workers will be distributed over 618 miles of the Project.
- Largest segment of the workforce will be along approximately 210 miles of Mainlines A and B in Ohio.
- Approximate 18-month construction period



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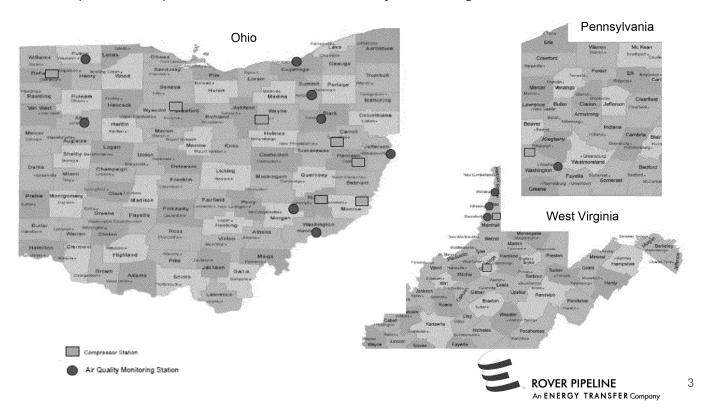


- 10 New Compressor Stations
- 8 compressor stations are in counties that are in attainment for criteria pollutants
- Burgettstown Compressor Station – Washington County, PA is designated nonattainment for 8-hr ozone standard and PM<sub>2.5</sub>
- Majorsville Compressor Station – Marshall County, WV is designated as nonattainment for SO<sub>2</sub>.

Compressor Station	County/Parish, State	Equipment Make and Model	Number of Units	Fuel	Approximate Output (BHp	
M-1-8 004	C	Caterpillar G3616	3		40 00r	
Mainline CS1	Carroll, OH	Caterpillar G16CM34	4	Natural gas	46,925	
		Caterpillar G3616	2		24.242	
Mainline CS2	Wayne, OH	Caterpillar G16CM34	3	Natural gas	34,010	
		Caterpillar G3616	2		24.040	
Mainline CS3	Crawford, OH	Caterpillar G16CM34	3	- Natural gas	34,010	
D-5	D-5 011	Caterpillar G3616	2	Makumi	25 630	
Defiance	Defiance, OH	Caterpillar G16CM34	2	Natural gas	25,830	
Sherwood	Doddridge, WV	Caterpillar G3616	3	Natural gas	14,205	
Majorsville	Marshall, WV	Caterpillar G3612	2	Natural gas	7,100	
Seneca	Noble, OH	Caterpillar G3616	4	Natural gas	18,940	
Clarington	Monroe, OH	Caterpillar G3616	2	Natural gas	9,470	
-		Caterpillar G3606	1		45.000	
Cadiz	Harrison, OH	Caterpillar G3616	3	- Natural gas	15,980	
Burgettstown	Washington, PA	Caterpillar G3520B	3	Natural gas	5,175	



- Air Quality (cont'd)
  - Proposed Compressor Stations and Air Quality Monitoring Stations



EPA-R5-2017-007657\_0000287



- · Compressor Station Emissions
  - Maximum Potential Annual Air Emissions of Criteria Pollutants, Formaldehyde (the hazardous air pollutant with the highest potential emissions), and Greenhouse Gases (CHG) as Carbon Dioxide Equivalent.

		Potential Emission Rates (tons per year)									
Emission Source	County, State			Criteria l	Pollutant			CH	G (Carboi	n Dioxide Equ	iivalent)
		NO <sub>x</sub>	со	voc	PM <sub>10</sub>	SO <sub>2</sub>	CH20	CH <sub>4</sub>	N <sub>2</sub> O	CO2	Total
Mainline Compression Station 1	Carroll, OH	232.22	221.74	94.51	12.87	0.96	43.78	287.43	84.59	150,481.36	156,049.38
Mainline Compression Station 2	Wayne, OH	168.98	160.16	68	9.35	0.71	32.24	241.87	61.18	108,849.13	113,726.10
Mainline Compression Station 3	Crawford, OH	168.98	160.16	68	9.35	0.71	32.24	241.87	61.18	108,849.13	113,726.10
Defiance Compressor Station	Defiance, OH	127.65	123.54	55.62	7.21	0.52	23.08	201.79	46.98	83,573.87	87,720.24
Sherwood Compressor Station	Doddridge, WV	70.38	75.75	45.61	4.34	0.29	7.14	139.78	27.87	49,582.83	52,544.56
Majorsville Compressor Station	Marshall, WV	35.27	37.97	23.25	2.27	0.16	3.56	89.05	14.08	25,039.22	26,996.35
Seneca Compressor Station	Noble, OH	93.83	100.89	60.12	5.73	0.4	9.52	157.29	37.12	66,041.14	69,263.63
Clarington Compressor Station	Monroe, OH	46.71	50.57	30.59	2.95	0.2	4.76	106.2	18.64	33,158.12	35,456.88
Cadiz Compressor Station	Harrison, OH	79.54	85.17	51	4.87	0.35	8.03	141.15	31.4	55,873.05	58,801.28
Burgettstown Compressor Station	Washington, PA	25.98	23.46	14.98	1.82	0.13	2.61	69.64	11.18	19.909.43	21.436.73





- · Compressor Station Emissions (cont'd)
  - Rover will apply for all applicable construction and operating permits from Ohio, West Virginia, and Pennsylvania.
  - Mitigation Measures for Operations:
    - Emissions from compressor engines will be controlled by oxidation catalysts to reduce emissions of CO, VOC, and formaldehyde.
    - Each compressor engine and the emergency generator will meet the emission standards in the New Source Performance Standards for stationary spark ignition internal combustion engines (40 CFR Part 60, Subpart JJJJ).
    - Emission rates will be supported by guarantees provided by the engine manufacturer and the oxidation catalyst supplier, as well as any required performance tests.
    - All units will follow the manufacturer's recommended operation and maintenance procedures to maintain emissions at the required levels.
    - SO<sub>2</sub> and PM<sub>10</sub>/PM<sub>2.5</sub> emissions will be reduced through combustion of inherently clean natural gas.
    - Venting of natural gas during start-up, shut down, and malfunctions will be minimized through preventative maintenance and standard operating procedures for these events.





- · Construction Emissions
  - Emissions associated with earth moving activities to install the pipeline. Includes emissions from diesel- and gasoline-fueled vehicles, and particulate matter (PM10) in the form of fugitive dust.

	Potential Emission Rates (tons per year)									
Emission Source	Criteria Pollutant									
	NO <sub>x</sub>	voc	co	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>25</sub>	CO <sub>2e</sub>			
Supply Laterals	544.3	120.4	1,753.4	140.5	783.2	166.9	284,268.2			
Mainlines A and B	544.3	120.4	1,753.4	140.5	799.9	170.4	284,268.2			
Market Segment	544.3	120.4	1,753.4	140.5	799.7	170.4	284,268.2			
Mainline Compression Station 1	9.9	4.4	60.2	1.6	17.0	2.8	4,654.9			
Mainline Compression Station 2	9.9	4.4	60.2	1.6	16.7	2.7	4,654.9			
Mainline Compression Station 3	9.9	4.4	60.2	1.6	16.9	2.8	4,654.9			
Defiance Compressor Station	9.9	4.4	60.2	1.6	16.7	2.7	4,654.9			
Sherwood Compressor Station	7.6	2.8	43.1	1.4	12.1	2.3	3,597.0			
Majorsville Compressor Station	7.6	2.8	43.1	1.4	10.9	2	3,597.0			
Seneca Compressor Station	7.6	2.8	43.1	1.4	10.4	1.9	3,597.0			
Clarington Compressor Station	7.6	2.8	43.1	1.4	11.2	2.1	3,597.0			
Cadiz Compressor Station	7.6	2.8	43.1	1.4	10.2	1.9	3,597.0			
Burgettstown Compressor Station	7.6	2.8	43.1	1.4	9.8	1.8	3,597.0			
Standalone Meter Stations	7.1	2.5	40.7	1.4	13.9	2.1	3,388.3			
Total	1,725.2	397.9	5,799.9	437.6	2,528.6	532.9	896,394.3			





- Construction Emissions (cont'd)
  - Mitigation measures to address construction-related impacts will include:
    - All fossil fuel-fired construction equipment engines will be maintained in accordance with manufacturers' recommendations to minimize construction-related combustion emissions.
    - Combustion emissions will be controlled using engines that meet engine manufacturing requirements for both mobile sources (40 CFR Part 85) and portable equipment such as air compressors.
    - Water trucks will be present at each construction site and will be utilized as necessary to reduce fugitive dust from construction activities.
    - Rover will limit the speed of vehicles at the construction sites and all pipeline right-of-way during construction to reduce the amount of fugitive dust generated.
    - · Open burning:
      - Will comply with all applicable state and local regulatory requirements, including acquiring all necessary open burning permits.
      - Project procedures include using on-site equipment to prevent the spread of fire and specifications on the level
        of attention required by contractor personnel during burning.

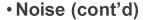




- Compressor Stations
  - Noise Levels During Operations is Limited to an  $L_{dn}$  of 55 A-weighted decibels (dBA) at Nearest Noise Sensitive Area (NSA) as Required by FERC.
  - Nearest NSAs to each Compressor Station:

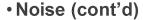
Compressor Station	County, State	Station Horsepower	Quantity and Type of Engine Drivers	Nearest NSA (distance in feet)
Sherwood	Doddridge, WV	14,205	3 G3616	1,360
Seneca	Noble, OH	18,940	4 G3616	1,280
Clarington	Monroe, OH	9,470	2 G3616	540
Majorsville	Marshall, WV	7,100	2 G3612	1,240
Cadiz	Harrison, OH	15,980	1 G3606 and 3 G3616	4,800
Burgettstown	Washington, PA	5,175	3 G3520B	1,030
Mainline1	Carroll, OH	46,925	3 G3616 and 4 G16CM34	550
Mainline 2	Wayne, OH	34,010	2 G3616 and 3 G16CM34	1,070
Mainline 3	Crawford, OH	34,010	2 G3616 and 3 G16CM34	870
Defiance	Defiance, OH	25,830	2 G3616 and 2 G16CM34	980





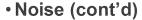
- Compressor Stations (cont'd)
  - Baseline Noise Surveys are being Conducted at Each Compressor Station.
  - Computer Noise Model will be used to Assess Noise Contributions Expected from the Addition of Proposed Equipment at Each Station.
  - Noise Mitigation Measures will be Incorporated into the Design to Comply with the FERC Standard.
  - Noise Mitigation Treatments will Vary Depending on Station and may include Any or All of the Following:
    - · Acoustically treated compressor building;
    - · Exhaust stack silencers;
    - · Engine combustion air intake silencers;
    - · Pipe lagging around above-ground pipes;
    - · Low noise gas coolers and lube oil coolers; and
    - · Noise Surveys will be conducted following construction to ensure compliance with FERC regulations.





- Meter Stations
  - Baseline Noise Surveys Will be Conducted at Each Meter Station.
  - Computer Noise Model Will be Used to Assess Noise Contributions Expected from the Addition of Proposed Equipment at Each Station.
  - Noise Mitigation Measures Will be Incorporated into the Design to Comply with the FERC Standard, As Needed.
- Horizontal Directional Drill (HDD) Sites
  - HDDs May Run 24 Hours Per Day.
  - Baseline Noise Surveys Will be Conducted at Each HDD Site.
  - Computer Noise Model Will be Used to Assess Noise Contributions Expected with a Target Sound Level Limit of 55 dBA During Nighttime Hours.





- Horizontal Directional Drill (HDD) Sites (cont'd)
  - Noise Mitigation Treatments Will Vary Depending on the Site Layout and the NSAs, and May Include Any or All of the Following:
    - · All engines on power units would be fitted with residential-grade exhaust mufflers.
    - · Barriers would be installed based on the following guidelines:
      - Constructed of at least %-inch plywood, lined on the HDD equipment side with 2 inches of medium-weight fiberglass board insulation such as Owens Corning 703 or Knauf Insulation Board, 2-inch thickness, 3 pounds per cubic foot. The insulation can be covered with thin plastic sheeting for weather protection.
      - There should be as few cracks and gaps in the barrier as possible.
      - There should be no space between the bottom of the barrier and the ground.
      - The barrier should break the line-of-sight between the HDD equipment and the NSA, with a minimum height of 12 feet. In locations where there is a long line of NSAs close to the HDD site, it may be necessary to wrap the barrier around the edges of the HDD site.
    - · Incorporate secondary noise control treatments as required.
    - Consider offering residents additional compensation or temporary relocation.



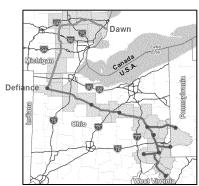
# **Presentation Agenda**

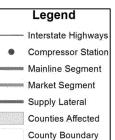
- CULTURAL RESOURCES (FERC Resource Report 4)
- SOCIOECONOMICS (FERC Resource Report 5)
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- QUESTIONS / COMMENTS



#### Evaluation Criteria for Alternatives

- Project Design Configured to Meet:
  - Project Purpose -
    - Provide transportation capacity to meet long-term commitments from Marcellus and Utica natural gas producers.
    - Facilitate the delivery of natural gas to high-demand centers by connection with the Hub facilities at Defiance and Dawn.
    - Provide additional access to natural gas supplies for Midwest gas consumers through interconnection with local distribution companies connected to the Project.
  - Project Need
    - Project is fully subscribed at a transportation capacity of 3.25 billion cubic feet per day (3.25 Bcf/d) of natural gas.
  - Project Schedule
    - Supply Laterals and Mainlines A and B In-Service December 2016
    - Market Segment In-Service no later than June 2017









- To Meet Project Purpose and Need, Alternative Would Need To:
  - Be capable of transporting 3.25 Bcf/d of natural gas produced in the Marcellus and Utica Shale in West Virginia, Ohio, and Pennsylvania to the Defiance and Dawn hubs, and interconnections with the existing pipeline infrastructure in Ohio and Michigan;
  - Be capable of collecting natural gas supplies from multiple receipt points located at producers' natural gas plants or supply systems into an integrated pipeline;
  - Be technically and economically feasible and practicable;
  - · Meet the Project schedule; and
  - Provide an environmental advantage over the Project as proposed.



#### No Action Alternative

- Project Would Not Be Constructed.
- There Would be No Environmental Impacts.
- Project Purpose and Need Would Not Be Met.

#### System Alternatives

- Involves use of other existing, modified, or proposed pipeline systems to meet the objectives of the Project.
- May reduce environmental impacts.
- There is no existing pipeline system or systems in the Project Area capable of transporting 3.25 Bcf/d:
  - Expansion of existing system facilities would be similar to, or greater than those proposed.
  - If such an alternative could be designed, there would be extreme schedule uncertainty due to involvement of multiple pipeline operators and the expansion of their facilities to meet Project objectives.



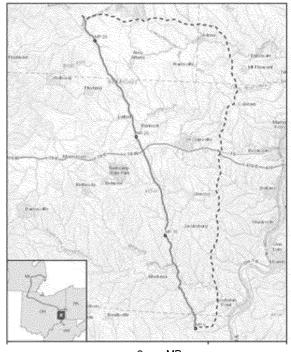


- Use of a Significantly Different Route to Achieve the Objectives of the Project.
- Criteria Used in Developing the Proposed Route Included:
  - · Maximizing use of existing rights-of-way.
  - · Avoidance of:
    - · Population centers,
    - Environmentally sensitive areas (i.e., recreation or designated scenic areas, natural habitat management areas),
    - Areas with other constraints for pipeline construction (i.e., steep terrain, side slopes, extensive wetlands or waterbodies, etc.)
  - Routes largely dependent on interconnections with suppliers and delivery locations at Defiance and Dawn.



### Major Route Alternatives (cont'd)

- Three Major Route Alternatives Evaluated
  - Clarington Lateral Belmont County Alternative
    - Belmont County Alternative designed to accommodate a customer receipt point near Adena, Ohio.
    - When the receipt point dropped, the proposed route was adjusted to reduce overall length and reduce environmental impacts.
    - · Proposed Route Requires:
      - 10.8 fewer miles of pipeline.
      - · 139.1 fewer acres of forest clearing.
      - · 23 fewer stream crossings.
      - · 2.8 fewer acres of forested wetland clearing.
      - Belmont County Alternative was eliminated due to greater environmental impacts and no need for receipt point.



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Clarington Lateral

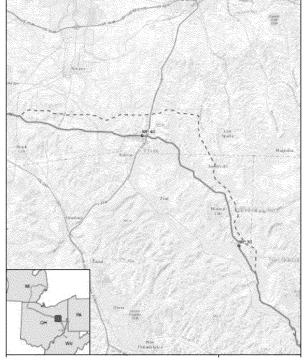
Belmont County Alternative



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### Major Route Alternatives (cont'd)

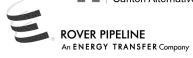
- Three Major Route Alternatives Evaluated
  - Mainlines A and B Canton Alternative
    - Canton Alternative was designed to avoid an old gravel pit, the town of Sandyville, and a recycling, disposal, and landfill facility.
    - · Proposed Route Requires:
      - · 2.4 fewer miles of pipeline.
      - · 43.2 fewer acres of forest clearing.
      - · 3 fewer stream crossings.
      - · 2.2 more acres of forested wetland clearing.
    - Canton Alternative was eliminated due to overall greater environmental impacts.



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Mainlines A and B

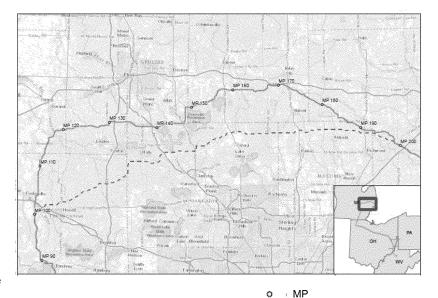
Canton Alternative



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### Major Route Alternatives (cont'd)

- Three Major Route Alternatives Evaluated
  - Market Segment Oakland Alternative
    - Oakland Alternative was designed to maximize length adjacent to existing rights-of-way.
    - · Proposed Route Has:
      - · 16.7 more miles of pipeline.
      - 16.4 fewer miles adjacent to existing rights-of-way.
      - · 9.2 more acres of forest clearing.
      - 24.5 more acres of forested wetland clearing.
      - 28.7 more acres of emergent and scrub-shrub wetland disturbance.
      - · 24 fewer stream crossings.
      - 2 fewer miles of public land crossings.
      - 22 fewer residences within 50 feet of the construction work areas.
    - Oakland Alternative was eliminated due to congestion in a number of areas and the impact on the overall number of residents.



Market Segment
Oakland Alternative

ROVER PIPELINE
An ENERGY TRANSFER Company

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#### Route Variations

- Typically short route alternatives designed to reduce impacts on specific localized features (i.e. streams, wetlands, residences, etc.) or to address construction- or designrelated concerns.
- · May reduce environmental impacts.
- Generally, environmental characteristics (i.e., land use, etc.) are similar except for avoidance of, or reduced impact on, the specific feature.
- Numerous route variations were already incorporated into the proposed route as a result of civil and environmental surveys, and landowner comments.
- Additional route variations are under consideration to address landowner and agency concerns, as well as construction- or design-related concerns.



### Aboveground Facilities

- Criteria for siting of compressor station facilities based on:
  - Hydraulic modeling to identify general location by milepost and horsepower that best optimized compression and fuel requirements while maintaining design delivery pressures (pounds per square inch gauge) and throughput (Bcf/d).
  - Environmental criteria (e.g., avoidance of sensitive environmental features such as wetlands)
  - Availability of the land for purchase.
- Criteria for siting of meter station facilities based on:
  - Interconnection point that best met supplier or delivery needs.
  - Environmental criteria (e.g., avoidance of sensitive environmental features such as wetlands)
  - Availability of the land for purchase.
- If a station met the above criteria and no significant environmental or other concerns were identified, no alternative sites were evaluated.



### Aboveground Facilities

- · Seneca Compressor Station
  - An alternative site was identified for the Seneca Compressor Station due to the potential of the land being unavailable for purchase.
  - · Proposed Site:
    - · Relatively level site.
    - · Small stream along eastern edge.
    - Nearest residence is 1,280 feet north of center of site.
  - · Alternative Site:
    - · Relatively level site.
    - Nearest residence is 970 feet west of the center of the site.



Seneca Compressor Station Alternative Seneca Compressor Station Site





# **Presentation Agenda**

- CULTURAL RESOURCES (FERC Resource Report 4)
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#### U.S. Pipeline Safety Standards

- · Hazards:
  - · A pipeline accident, or natural catastrophe affecting a pipeline, can result in the following:
    - · gas release only,
    - · ignition with fire,
    - · ignition with explosion,
    - · exposure of the operator, the public, the natural habitat and populated species, or
    - · operational impacts with service deficiencies or interruptions.
  - U.S. Department of Transportation (USDOT), Pipeline and Hazardous Materials Safety Administration (PHMSA) is the federal agency responsible for regulating oil and gas pipelines.
    - · Over 2.6 million miles of pipelines across the United States
    - Over the past two decades, risk of pipeline incidents with death or major injury have decreased by approximately 10 percent every three years (PHMSA, 2013).





- · Pipe Class Locations
  - · Based on population density.
  - · Four area classes as defined by federal law:
    - Class 1 (Location with 10 or fewer buildings intended for human occupancy) to Class 4 (Location where buildings with four or more stories aboveground are prevalent).
    - · More populated areas require more stringent considerations in pipeline design.
    - Pipeline design pressures, wall thickness, hydrostatic test pressures, maximum allowable operating pressure (MAOP), inspection and testing of welds and frequency of pipeline patrols and leak surveys must conform to higher standards in more populated areas.
- High Consequence Areas (HCA)
  - PHMSA has incorporated additional requirements into law for HCAs, which are defined as:
    - · Any Class 3 or Class 4 area, or
    - Any Class 1 or Class 2 area where the potential impact radius (PIR) is greater than 660 feet and the area within the PIR contains 20 or more buildings intended for human occupancy among other requirements.
  - PIR is calculated by a formula and includes the radius of a circle within which the hypothetical failure of a pipeline could have significant impact on people or property.





- High Consequence Areas (HCA) (cont'd)
  - A facility-specific Integrity Management Plan documenting procedures for monitoring and maintaining pipeline integrity is required for areas considered HCAs. This requires:
    - · identification of all HCAs,
    - · establishment of a baseline assessment plan,
    - · identification of threats to each pipeline segment and development of preventive and mitigative measures,
    - establishment of an assessment plan depending on the threat assessed,
    - · establishment of a process for continual evaluation and assessment,
    - establishment of a performance plan as outlined in American Society of Mechanical Engineers (ASME)/American National Standards Institute (ANSI) B31.8S (includes performance measures to meet requirements),
    - establishment of a Communication Plan (ASME/ANSI B31.8S, Section 10),
    - establishment of a Management of Change Plan (ASME/ANSI B31.8S, Section 11),
    - establishment of a Quality Assurance Process (ASME/ANSI B31.8S, Section 12),
    - establishment of procedures for providing (when requested) copies of integrity management or risk analysis to state or local pipeline safety authorities,
    - establishment of procedures for ensuring that each integrity assessment is being conducted in a manner that minimizes environmental and safety risks, and
    - establishment of procedures for identification and assessment of newly-identified HCAs.





- · National Pipeline Incident Data
  - Since June 1984, USDOT has required all operators to notify USDOT of any reportable incident and to submit a written report with 30 days of occurrence.
    - · Most frequent causes for incidents:
      - · Outside forces (excavation damage)
      - · Material Failure
      - Corrosion
      - Natural forces (earth movements, geologic hazards, weather)

# Incident Summary for Onshore Natural Gas Transmission Lines by Cause 1994-2013

Reported Cause of Incident	Number of Incidents <sup>a</sup>	Fatalities	Injuries
Corrosion	259	13	6
Excavation Damage	347	15	42
Incorrect Operation	45	0	9
Material/Weld/Equipment Failure	436	8	71
Natural Force Damage	136	0	2
Other Outside Force Damage	97	0	13
All Other Causes	219	3	45
TOTAL	1,539	39	188

<sup>&</sup>lt;sup>a</sup> Includes all reported incidents.

Source: USDOT, 2014.





- To minimize risk of outside/natural force incidents, Rover will:
  - install approximately 32 percent of its pipelines parallel to and abutting rights-of-way of other pipelines or utilities, creating a well-marked corridor for excavators to see;
  - install all required line markers and signs with appropriate 24-hour contact numbers for identification of the pipeline and facilities;
  - ensure through its Operator Qualification Plan that its employees are sufficiently trained to eliminate excavation damage caused by operator employees;
  - prepare and implement a Public Awareness Plan and specifically ensure that property owners along the pipeline are aware of its location on their property;
  - · conduct a Continuing Pipeline Surveillance Plan;
  - · implement a Damage Prevention Program;
  - participate fully in state One Call systems; and
  - review and update operational plans at routine intervals, and especially when new facilities are added.





- To minimize risk of material failure, Rover will:
  - specify and order its pipe, fittings, valves and other components in strict accordance with company specifications, applicable codes and regulations referenced in Part 192, such as American Petroleum Institute (API) and ASTM standards and specifications;
  - employ an inspection and quality control process ensuring the above are manufactured in accordance with the applicable specifications;
  - utilize a material tracking system to verify that the specific pipe, valves, or fittings are installed in the correct locations as specified in the plans;
  - utilize state of the art automatic welding processes to produce superior pipeline girth welds;
  - conduct radiography or non-destructive testing on 100 percent of all pipeline girth welds;
  - conduct hydrostatic or other testing on pipeline components after installation that meets or exceeds the requirements of Part 192; and
  - run a second generation caliper pig post construction to verify no dents or buckles are present after construction and prior to line commissioning.





- To minimize risk of corrosion failure, Rover will:
  - internally coat its pipeline with fusion bonded epoxy (FBE) coating for protection from internal corrosion;
  - externally coat its pipeline with FBE coating for protection from external corrosion;
  - inspect the pipeline during the lowering-in process with an electronic holiday detector and repair any coating defects with approved repair methods and procedures;
  - design, install, and maintain a cathodic protection system to provide continual protection to the pipeline from external corrosion:
  - evaluate the potential effects of nearby electric power transmission lines and include appropriate mitigation systems if required;
  - utilize a special abrasion-resistant overlay coating on all road bores and Horizontal Directional Drill locations so that the pipeline coating is not damaged during pull in;
  - develop and implement an Integrity Management Plan with required baseline investigations and periodic reassessments as required;
  - clean and coat aboveground piping and facilities in accordance with latest company specifications; and
  - on periodic intervals, re-evaluate the corrosion system and its effectiveness making revisions as required, for the life of the pipeline.





- Other USDOT/PHMSA Requirements
  - Prepare and implement a written Operations and Maintenance Plan for conducting and documenting all operations and maintenance activities on the pipeline.
  - Prepare and implement a written Operator Qualification Plan to identify covered tasks that are performed on the pipeline or facilities for operations and maintenance, and ensure necessary training is provided to individuals performing those tasks.
  - Implement a Continuing Pipeline Surveillance Plan with procedures for:
    - Conducting routine and continuing surveillance to detect any changes in structures (e.g. Class Locations, HCAs) or other conditions that may jeopardize the integrity of the pipeline facilities, and
    - · Implementing appropriate actions to be taken if such conditions are encountered.
  - Prepare and implement a written Damage Prevention Program to prevent damage to the pipeline and facilities caused by excavation activities.





- Other Measures to Protect the Public
  - · Passive protection will include:
    - Pipeline design, construction, commissioning, and operation will be conducted in strict accordance with applicable USDOT regulations found in Part 192.
    - In accordance with USDOT regulations, the pipeline design factor, wall thickness, location of mainline valves, and other parameters will be established according to a classification system based on the number, proximity to the pipeline, and occupation levels of buildings intended for human occupancy located along the right-of-way.
    - Rover will comply with the applicable sections of the ASME/ANSI B31.8, Gas Transmission and Distribution
       Piping Systems, which is the most widely used industry code, for the design, operation, maintenance, and repair
       of a natural gas transmission pipeline.
    - · The pipeline will be internally and externally coated with FBE to protect against corrosion.
    - Construction specifications will be developed for installation of the proposed facilities incorporating relevant sections of the Upland Erosion Control, Revegetation, and Maintenance Plan and Rover's Waterbody and Wetland Construction and Mitigation Procedures.
    - Temporary erosion controls will be utilized to minimize erosion during construction.
    - Upon completion of construction, permanent erosion control measures will be installed, and maintained throughout operations.





### U.S. Pipeline Safety Standards (cont'd)

- Other Measures to Protect the Public (cont'd)
  - Active controls will include the following:
    - Applicable overpressure protection systems will be installed at receipt/delivery interconnect points.
    - · An impressed current cathodic protection system will be installed as a corrosion prevention measure to protect the integrity of the pipeline system.
    - · A Supervisory Control and Data Acquisition (SCADA) system will provide for and enable continuous pipeline monitoring and the control of the gas pipeline.
    - Remote Terminal Units for the SCADA system will be located on every receipt/delivery interconnect manifold, at those points on the pipeline.
    - · Mainline valves (MLV) will be installed at regular intervals as specified by Part 192 for classification locations. MLVs will be equipped with actuators that will allow for valve closure if a rapid loss of pressure is detected.
    - · All of the field girth welds will be tested via radiography or ultrasonic inspection (non-destructive examination).
    - The pipeline and associated facilities will be hydrostatically tested for structural integrity before commencing operation.
    - A caliper pig will be run to detect any unacceptable dents or out-of-roundness before commencing operation.
    - The pipeline will be equipped with facilities to accommodate smart pigging operations for the purpose of locating anomalies in the pipeline wall thickness that may indicate corrosion, and out-of-roundness that may indicate the pipe has been subjected to external forces.





- Other Measures to Protect the Public (cont'd)
  - Implement an Emergency Response Plan that will include procedures for:
    - · receiving, identifying, and classifying notices of events which require immediate response by the operator;
    - establishing and maintaining communications with appropriate fire, police, and public officials;
    - providing prompt and effective response to a notice of each type of emergency, including gas detected inside
      or near a building, fire located near or directly involving a pipeline facility, explosion occurring near or directly
      involving a pipeline facility, or natural disaster;
    - · making personnel, equipment, tools, and materials available at the scene of an emergency;
    - · protecting people first and then property, and making safe any actual or potential hazards to life or property;
    - activating emergency shutdown and pressure reduction in any section of the system necessary to minimize hazards to life or property;
    - notifying appropriate fire, police, and other public officials of gas pipeline emergencies, and coordinating with them both planned responses and actual responses during an emergency; and
    - · safely restoring any service outage.





- Other Measures to Protect the Public (cont'd)
  - · Implement a Public Awareness Plan designed to educate landowners, the public, government officials, and persons engaged in excavation activities in areas of the pipeline or facilities. This written plan will include a program for:
    - · Educating the above named parties on the characteristics of natural gas;
    - · Providing an explanation of the One Call process and how it should be utilized by those planning excavation activities in the vicinity of the pipeline;
    - · Identifying possible hazards associated with the unintended release of gas;
    - · Identifying steps that should be taken immediately for individual safety concerns; and
    - · Procedures for reporting these incidents to Rover.



### U.S. Pipeline Safety Standards (cont'd)

· National Pipeline Incident Data

Annual Fatalities and Injuries which Occurred on Natural Gas Transmission Lines for the 10-year period (2004 – 2013)

Year	Fatalities	Injuries
2004	0	2
2005	0	5
2006	3	3
2007	2	7
2008	0	5
2009	0	11
2010	10	61
2011	0	1
2012	0	7
2013	0	2
TOTAL	15	104

Source: U.S. Department of Transportation. Pipeline and Hazardous Materials Safety Administration.

# Nationwide Totals for Transportation-Related Facilities and Injuries in 2012 by Mode of Transportation

Mode	Fatalities	Injuries	
Highway	33,561	2,362,000	
Railroad	557	7,622	
Waterborne	714	3,688	
Air The second seco	447	276	
Transit	80	Data Unavailable	
Pipeline (All)	12	58	
Gas Transmission Pipelines	0	7	

Source: USDOT, Bureau of Transportation Statistic, Research and Innovation Technology Administration. Pipeline data updated with preliminary 2012 statistics.

Table provides a relative measure as individuals are not uniformly exposed to hazards from all modes of transportation



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